

## STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

**Greg Denton** 

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike

Knoxville, TN 37921

Lab ID: K00002198

**Knoxville Regional Laboratory** 

Sampling Agency: TDEC: Division of Water Pollution Control

**Billing Code:** 

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

K00002198001

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA Ash Spill

Chlorine, residual:

**Field Determinations** 

**Dissolved Oxygen: 13.75** 

7.53

pH Units

Conductivity:

Temperature:

:Hq

Other:

Flow:

41 6.91 **uMHO** 

mg/L

**CFS** 

**Project Site No.:** 

**Station No.:** 

1

EMORY012.1RO

**Date/Time Collected:** Sampler's Name:

03/05/2009 10:00

County:

Geoff Klein **ROANE - 73** 

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC

Send Report To:

327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: **Priority Date:** 

03/15/2009

Date/Time Received:

03/05/2009

13:55

Received By:

S Staller

TEST: Alkalinity, Total	ME	THOD: EPA 31	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	10	mg/L	3.8	10	M Chen	3/6/2009

TEST: Hardness, Calcium	,					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	11	mg/L	0.7	1	M Chen	3/6/2009

TEST: Residue, Settleable	METHOD: SM 2540F						
ANALYTE	RESULT UNITS MDL		MDL	MQL	ANALYZED BY:	: DATE	
Settleable Residue	<0.1	ml/L	0.10	0.10	P Leathers	3/6/2009	

TEST: Residue, Suspended	ME:					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	3/6/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002198002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

**Station No.:** 

**Date/Time Collected:** 

EMORY002.1RO

Sampler's Name:

03/05/2009 10:57 Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency:

TDEC-WPC

**Billing Code: Send Report To:** 

327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

**TDEC-WPC** 03/15/2009

**Date/Time Received:** 

03/05/2009

13:55

Received By:

S Staller

**Field Determinations** 

pH:

7.22

pH Units

Chlorine, residual:

Conductivity:

45

uMHO

Temperature: Dissolved Oxygen: 13.27

6.39

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total METHOD: EPA 310.2							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	14	mg/L	3.8	10	M Chen	3/6/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	15	mg/L	0.7	1	M Chen	3/6/2009

TEST: Residue, Settleable METHOD: SM 2540F							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Settleable Residue	<0.1	ml/L	0.10	0.10	P Leathers	3/6/2009	

TEST: Residue, Suspended	METHOD: SM 2540D							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE		
Total Suspended Solids	U	mg/L	10	10	A Peeples	3/6/2009		

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002198003

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA Ash Spill

Emory River mile 1.7

**Project Site No.:** 

**Station No.:** 

EMORY001.7RO

Date/Time Collected:

03/05/2009 11:14

Sampler's Name: County:

Geoff Klein

Sample Matrix:

**ROANE - 73** 

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

**Billing Code:** Send Report To: 327.34-20

Agency Invoiced:

TDEC-WPC **TDEC-WPC** 

**Priority Date:** 

03/15/2009

Date/Time Received:

03/05/2009 13:55

Received By:

S Staller

**Field Determinations** 

pH:

7.10

pH Units

Chlorine, residual:

Conductivity:

43

**uMHO** 

Temperature: Dissolved Oxygen: 13.14

5.68

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	13	mg/L	3.8	10	M Chen	3/6/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MQL	ANALYZED BY:	DATE		
Calcium hardness	16	mg/L	0.7	1	M Chen	3/6/2009	

TEST: Residue, Settleable METHOD: SM 2540F								
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE		
Settleable Residue	<0.1	ml/L	0.10	0.10	P Leathers	3/6/2009		

TEST: Residue, Suspended	WE					
ANALYTE	RESULT UNITS MDL		MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	3/6/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002198004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 0.1

**Project Site No.:** 

Sampler Project Name: TVA Ash Spill

Station No.:

EMORY000.1RO

Date/Time Collected:

03/05/2009 11:29

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To:

TDEC-WPC TDEC-WPC

Agency Invoiced: **Priority Date:** 

03/15/2009

Date/Time Received:

03/05/2009

13:55

Received By:

S Staller

**Field Determinations** 

pH:

7.09

pH Units

Chlorine, residual:

Conductivity:

48

uMHO

Temperature:

6.74

**Dissolved Oxygen: 12.63** 

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME:	THOD: EPA 31	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	48	mg/L	3.8	10	M Chen	3/6/2009

TEST: Hardness, Calcium	ME.	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	42	mg/L	0.7	1	M Chen	3/6/2009

TEST: Residue, Settleable	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	<0.1	ml/L	0.10	0.10	P Leathers	3/6/2009

ME <sup>-</sup>	THOD: SM 254				
RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
U	mg/L	10	10	A Peeples	3/6/2009
		RESULT UNITS		RESULT UNITS MDL MQL	RESULT UNITS MDL MQL ANALYZED BY:

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

**Date/Time Collected:** 

K00002198005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3 near Hwy 70 bridge

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

5

**Station No.:** 

CLINC002.3RO

Sampler's Name:

03/05/2009 11:41 Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC

**Send Report To:** Agency Invoiced:

327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** 

03/15/2009

Date/Time Received:

03/05/2009

13:55

Received By:

S Staller

**Field Determinations** 7.72

pH: Chlorine, residual:

Temperature:

Conductivity:

132

7.77

Dissolved Oxygen: 12.68 mg/L

pH Units

**uMHO** 

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME	THOD: EPA 31	0.2		<del>V </del>	
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	84	mg/L	3.8	10	M Chen	3/6/2009

TEST: Hardness, Calcium	ME.	METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	65	mg/L	0.7	1	M Chen	3/6/2009

TEST: Residue, Settleable	ME	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	<0.1	ml/L	0.10	0.10	P Leathers	3/6/2009

TEST: Residue, Suspended	ME	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	3/6/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002198006

**Project Name:** 

TVA-Ash Spill

Sample Description:

pH: Clinch River mile 4.5 near Sugar Grove Valley F Chlorine, residual:

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

Date/Time Collected:

CLINC004.5RO

Sampler's Name:

03/05/2009 Geoff Klein

County:

**ROANE - 73** 

Sample Matrix:

Water

EFO: **Sampling Agency:**  Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

**Priority Date:** 

03/15/2009

Date/Time Received:

03/05/2009

13:55

11:53

Received By:

S Staller

Dissolved Oxygen:	12.13	mg/L
Other:		

7.96

211

8.19

**Field Determinations** 

Conductivity:

Temperature:

Flow:

**CFS** 

pH Units

uMHO

TEST: Alkalinity, Total	ME.	THOD: EPA 31	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	110	mg/L	3.8	10	M Chen	3/6/2009

TEST: Hardness, Calcium	MET	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	88	mg/L	0.7	1	M Chen	3/6/2009

TEST: Residue, Settleable	ME	ΓHOD: SM 254	0F			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	<0.1	ml/L	0.10	0.10	P Leathers	3/6/2009

TEST: Residue, Suspended METHOD: SM 2540D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	3/6/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit MQL - Method Quantitation Limit** 



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TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

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6th Floor, L & C Tower Annex

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Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike

Knoxville, TN 37921

**Lab ID:** K00002198

Knoxville Regional Laboratory

Sampling Agency: TDEC: Division of Water Pollution Control

**Billing Code:** 

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

K00002198001

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

EMORY012.1RO

**Date/Time Collected:** 

03/05/2009 10:00

Sampler's Name: County:

Geoff Klein **ROANE - 73** 

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **TDEC-WPC** TDEC-WPC

**Priority Date:** Date/Time Received:

03/15/2009 03/05/2009 13:55

Received By:

S Staller

**Field Determinations** 

:Hq

7.53

pH Units

Chlorine, residual:

Conductivity:

41

uMHO

Temperature: **Dissolved Oxygen: 13.75** 

6.91

mg/L

Other:

Flow:

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	03/06/2009				A Wilson	3/6/2009	

TEST: ICP METHOD: EPA 200.7							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	87	μg/L	2.9	10	A Bass	3/9/2009	

TEST: ICP-MS	ME	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	62	μg/L	6.4	10	M Pattanayek	3/10/2009
Antimony	U ,	μg/L	0.33	1	M Pattanayek	3/10/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009
Barium	22	μg/L	2.5	5	M Pattanayek	3/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009
Cobalt	0.22J	μg/L	0.04	1	M Pattanayek	3/10/2009
Copper	2.5	μg/L	0.38	1	M Pattanayek	3/10/2009
Lead	0.11J	μg/L	0.10	1	M Pattanayek	3/10/2009
Manganese	21	μg/L	0.42	1	M Pattanayek	3/10/2009
Nickel	0.93J	μg/L	0.25	1	M Pattanayek	3/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	3/10/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	3/10/2009
Thallium	0.12J	μg/L	0.03	1	M Pattanayek	3/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009
Zinc	4.1J	μg/L	1.9	5	M Pattanayek	3/10/2009

K00002198001

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

EMORY012.1RO

Date/Time Collected:

03/05/2009 10:00

Sampler's Name: County:

Geoff Klein ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville

**Billing Code:** 

TDEC-WPC

Send Report To:

327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 03/15/2009

Date/Time Received:

03/05/2009 13:55

Received By:

S Staller

**Field Determinations** 

pH:

7.53

pH Units

Chlorine, residual:

Conductivity:

41

**uMHQ** 

Temperature: **Dissolved Oxygen: 13.75** 

6.91

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.13	0.2	A Wilson	3/10/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002198002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

**Station No.:** 

EMORY002.1RO

Date/Time Collected:

03/05/2009 10:57

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency: Knoxville TDEC-WPC

**Billing Code:** Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** 

03/15/2009

Date/Time Received:

03/05/2009

13:55

Received By:

S Staller

**Field Determinations** pH Units 7.22 pH: Chlorine, residual: uMHQ

45 Conductivity: Temperature: 6.39

**Dissolved Oxygen: 13.27** 

Other:

Flow: **CFS** 

mg/L

TEST: Digestion Metals	METHOD: EPA 200.2							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE		
Digestion Metals	03/06/2009				A Wilson	3/6/2009		

TEST: ICP	METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	190	μg/L	2.9	10	A Bass	3/9/2009	

TEST: ICP-MS	ME	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	130	μg/L	6.4	10	M Pattanayek	3/10/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	3/10/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009
Barium	25	μg/L	2.5	5	M Pattanayek	3/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009
Cobalt	0.23J	μg/L	0.04	1	M Pattanayek	3/10/2009
Copper	0.61J	μg/L	0.38	1	M Pattanayek	3/10/2009
Lead	0.17J	μg/L	0.10	1	M Pattanayek	3/10/2009
Manganese	29	μg/L	0.42	1	M Pattanayek	3/10/2009
Nickel	0.96J	μg/L	0.25	1	M Pattanayek	3/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	3/10/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	3/10/2009
Thallium	0.07J	μg/L	0.03	1	M Pattanayek	3/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009
Zinc	2.8J	μg/L	1.9	5	M Pattanayek	3/10/2009

K00002198002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

EMORY002.1RO

**Date/Time Collected:** 

03/05/2009 10:57

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

**Billing Code:** 

327.34-20 TDEC-WPC

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC

Date/Time Received:

03/15/2009

Received By:

03/05/2009 13:55

S Staller

**Field Determinations** 

pH: 7.22

pH Units

Chlorine, residual:

Conductivity:

45

uMHQ

Temperature: 6.39

Dissolved Oxygen: 13.27

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury METHOD: EPA 245.1							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.13	0.2	A Wilson	3/10/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit

K00002198003

**Project Name:** 

TVA-Ash Spill

Sample Description: Sampler Project Name: TVA Ash Spill

Emory River mile 1.7

**Project Site No.:** 

Station No.:

EMORY001.7RO

Date/Time Collected:

03/05/2009 11:14

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC

Send Report To:

327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 03/15/2009

Date/Time Received:

03/05/2009 13:55

Received By:

S Staller

**Field Determinations** 

pH:

7.10

pH Units

Chlorine, residual:

Conductivity:

43

uMHO

Temperature:

5.68

Dissolved Oxygen: 13.14

mg/L

Other:

Flow:

TEST: Digestion Metals	MET						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	03/06/2009				A Wilson	3/6/2009	

TEST: ICP METHOD: EPA 200.7							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	190	μg/L	2.9	10	A Bass	3/9/2009	

TEST: ICP-MS	ME:					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	120	μg/L	6.4	10	M Pattanayek	3/10/2009
Antimony	U	μg/Ľ	0.33	1	M Pattanayek	3/10/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009
Barium	25	µg/L	2.5	5	M Pattanayek	3/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009
Chromium	υ	μg/L	2.0	5	M Pattanayek	3/10/2009
Cobalt	0.23J	μg/L	0.04	1	M Pattanayek	3/10/2009
Copper	1.9	μg/L	0.38	1	M Pattanayek	3/10/2009
Lead	0.21J	μg/L	0.10	1	M Pattanayek	3/10/2009
Manganese	29	μg/L	0.42	1	M Pattanayek	3/10/2009
Nickel	0.93J	μg/L	0.25	1	M Pattanayek	3/10/2009
Selenium	U	μg/L	1.3	. 5	M Pattanayek	3/10/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	3/10/2009
Thallium	0.04J	μg/L	0.03	1	M Pattanayek	3/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009
Zinc	3.9J	μg/L	1.9	5	M Pattanayek	3/10/2009

K00002198003

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

EMORY001.7RO

Date/Time Collected:

03/05/2009 11:14

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** Send Report To: TDEC-WPC 327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 03/15/2009

Date/Time Received:

03/05/2009

13:55

Received By:

S Staller

**Field Determinations** 

Dissolved Oxygen: 13.14

:Hq

7.10

pH Units

Chlorine, residual:

Conductivity:

43

**uMHO** 

Temperature:

5.68

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury	ME		<del></del>			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	3/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002198004

**Project Name:** 

TVA-Ash Spill

Sample Description: Sampler Project Name: TVA Ash Spill

Emory River mile 0.1

**Project Site No.:** 

Station No.: EMORY000.1RO Date/Time Collected:

Sampler's Name:

03/05/2009 11:29 Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC 03/15/2009

Date/Time Received:

03/05/2009 13:55

Received By:

S Staller

**Field Determinations** 

pH:

7.09

pH Units

Chlorine, residual:

Conductivity:

48 6.74 uMHO mg/L

Temperature:

Dissolved Oxygen: 12.63

Other: Flow:

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	03/06/2009		- · · <del>-</del> · · · ·		A Wilson	3/6/2009	

TEST: ICP METHOD: EPA 200.7							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	190	μg/L	2.9	10	A Bass	3/9/2009	

TEST: ICP-MS	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	120	μg/L	6.4	10	M Pattanayek	3/10/2009
Antimony	. U	μg/L	0.33	1	M Pattanayek	3/10/2009
Arsenic	ប	μg/L	0.93	5	M Pattanayek	3/10/2009
Barium	30	μg/L	2.5	5	M Pattanayek	3/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009
Cobalt	0.21J	μg/L	0.04	1	M Pattanayek	3/10/2009
Copper	1.5	μg/L	0.38	1	M Pattanayek	3/10/2009
Lead	0.22J	μg/L	0.10	1	M Pattanayek	3/10/2009
Manganese	30	μg/L	0.42	1	M Pattanayek	3/10/2009
Nickel	1.1	μg/L	0.25	1	M Pattanayek	3/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	3/10/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	3/10/2009
Thallium	0.03J	μg/L	0.03	1	M Pattanayek	3/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009
Zinc	3.2J	μg/L	1.9	5	M Pattanayek	3/10/2009

K00002198004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 0.1

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

EMORY000.1RO

Date/Time Collected:

03/05/2009 11:29

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC 03/15/2009

Date/Time Received:

03/05/2009 13:55

Received By:

S Staller

**Field Determinations** 

:Ha

7.09

pH Units

Chlorine, residual:

Conductivity:

48

uMHO

Temperature:

6.74

Dissolved Oxygen: 12.63

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT UNITS		MDL	MQL	ANALYZED BY:	DATE
Mercury	0.14J	μg/L	0.13	0.2	A Wilson	3/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002198005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3 near Hwy 70 bridge

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

5

Station No.:

CLINC002.3RO

**Date/Time Collected:** 

03/05/2009 11:41

Sampler's Name: County:

Geoff Klein

Sample Matrix:

**ROANE - 73** 

EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

**Billing Code:** Send Report To: 327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 03/15/2009

Date/Time Received:

03/05/2009 13:55

Received By:

S Staller

**Field Determinations** 

pH:

7.72

pH Units

Chlorine, residual:

Conductivity:

132 7.77 uMHO

Temperature: Dissolved Oxygen: 12.68

mg/L

Other:

Flow:

TEST: Digestion Metals	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	03/06/2009				A Wilson	3/6/2009

TEST: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	180	μg/L	2.9	10	A Bass	3/9/2009

TEST: ICP-MS	ME.	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	120	μg/L	6.4	10	M Pattanayek	3/10/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	3/10/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009
Barium	34	μg/L	2.5	5	M Pattanayek	3/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009
Cobalt	0.22J	μg/L	0.04	1	M Pattanayek	3/10/2009
Copper	1.6	μg/L	0.38	1	M Pattanayek	3/10/2009
Lead	0.25J	μg/L	0.10	1	M Pattanayek	3/10/2009
Manganese	30	μg/L	0.42	1	M Pattanayek	3/10/2009
Nickel	1.4	μg/L	0.25	1	M Pattanayek	3/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	3/10/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	3/10/2009
Thallium	0.03J	μg/L	0.03	1	M Pattanayek	3/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009
Zinc	2.6J	μg/L	1.9	5	M Pattanayek	3/10/2009

K00002198005

**Project Name:** 

TVA-Ash Spill

**Sample Description:** 

Clinch River mile 2.3 near Hwy 70 bridge

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

CLINC002.3RO

**Date/Time Collected:** 

03/05/2009 11:41

Sampler's Name:

Geoff Klein

County:

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

**Priority Date:** 

03/15/2009

Date/Time Received:

03/05/2009

13:55

Received By:

S Staller

**Field Determinations** 

Dissolved Oxygen: 12.68

pH:

7.72

pH Units

uMHO

Chlorine, residual:

Conductivity: Temperature: 132

7.77

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	3/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002198006

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

CLINC004.5RO

**Date/Time Collected:** 

03/05/2009 11:53

Sampler's Name:

Geoff Klein

County:

Sample Matrix:

ROANE - 73

EFO: Sampling Agency: Water Knoxville

Billing Code: Send Report To: TDEC-WPC 327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 03/15/2009

Date/Time Received:

03/05/2009 13:55

Received By:

S Staller

**Field Determinations** 

pH:

7.96

pH Units

**uMHO** 

Conductivity:

211

Temperature: 8.19 Dissolved Oxygen: 12.13

mg/L

Other:

Flow:

TEST: Digestion Metals	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	03/06/2009				A Wilson	3/6/2009

TEST: ICP						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	130	μg/L	2.9	10	A Bass	3/9/2009

TEST: ICP-MS	ME <sup>-</sup>	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	70	μg/L	6.4	10	M Pattanayek	3/10/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	3/10/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009
Barium	34	μg/L	2.5	5	M Pattanayek	3/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009
Cobalt	0.17J	μg/L	0.04	1	M Pattanayek	3/10/2009
Copper	1.0	μg/L	0.38	1.	M Pattanayek	3/10/2009
Lead	0.26J	μg/L	0.10	1	M Pattanayek	3/10/2009
Manganese	31	μg/L	0.42	1	M Pattanayek	3/10/2009
Nickel	1.6	μg/L	0.25	1	M Pattanayek	3/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	3/10/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	3/10/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	3/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009
Zinc	3.1J	μg/L	1.9	5	M Pattanayek	3/10/2009

K00002198006

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

**Field Determinations** 

Dissolved Oxygen: 12.13

Conductivity:

Temperature:

7.96

211

8.19

pH Units

**uMHO** 

mg/L

**CFS** 

pH:

Other:

Flow:

Sampler Project Name: TVA Ash Spill

**Project Site No.:** 

Station No.:

CLINC004.5RQ

Date/Time Collected: Sampler's Name:

03/05/2009 Geoff Klein

County:

**ROANE - 73** 

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-WPC

Send Report To:

327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 03/15/2009

Date/Time Received:

03/05/2009

13:55

11:53

Received By:

S Staller

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	3/10/2009
			···			

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit